

I claim:

1. A method of recovery of a metal from an etching solution comprising the steps of:
 - forming an etching solution containing ferric chloride;
 - 5 using the etching solution containing ferric chloride to etch a metal containing one or both of the metals selected from the group consisting of nickel and copper to form a spent etching solution containing metals of one or both of the metals selected from the group consisting of nickel and copper;
 - collecting the spent etching solution ; and
 - 10 placing iron particles in the spent etching solution to precipitate a metal powder of one or both of the metals selected from the group consisting of nickel and copper.
2. The method of claim 1 including the step of separating the metal powder from the spent etching solution through filtration.
- 15 3. The method of claim 1 including the step of separating the metal powder from the spent etching solution through sedimentation.
4. The method of claim 1 including the step of separating the metal powder from the spent etching solution through centrifugation. .
- 20 5. The method of claim 1 wherein the iron particles comprise particles having at least one dimension in excess of a millimeter.
- 25 6. The method of claim 1 including the step of maintaining the etching solution at a temperature less than the boiling point of the spent etching solution.

7. The method of claim 1 including the step of maintaining the etching solution at a temperature in excess of 0° centigrade.

8 The method of claim 1 including the step of removing the metal powder from the
5 spent etching solution and adding chlorine to the spent etching solution to regenerate a fresh batch of ferric chloride.

9. The method of spent etching solution separation comprising:
collecting a spent metal etching solution containing iron and a residue metal;
10 introducing iron particles into the spent metal etching solution to thereby cause at least a portion of the residue metal to precipitate therefrom in the form of a metal powder;
and removing the metal powder from the spent metal etching solution.

10. In combination;
15 a container;
a spent ferric chloride etching solution containing a residue metal therein; and
a plurality of iron particles submerged in the spent ferric chloride etching solution,
said iron particles submerged in the spent ferric chloride sufficiently long to precipitate the
residue metal from the spent ferric chloride etching solution.

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11. The combination of claim 10 wherein the residue metal comprises copper to thereby precipitate copper metal therefrom.

12. The combination of claim 10 wherein the residue metal comprises nickel to thereby
25 precipitate nickel metal therefrom.

13. The combination of claim 10 wherein the spent ferric chloride contains iron and a residue of copper and copper ions and a residue of nickel and nickel ions to thereby precipitate copper metal and nickel metal out of the spent ferric chloride solution.

5 14. The combination of claim 13 wherein the container receives the spent etching solution from an etching station.

15. The combination of claim 14 wherein the combination is part of a system for etching, separation of residue metal and regeneration of spent etching solution.

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16. The combination of claim 15 wherein the spent etching solution contains iron.